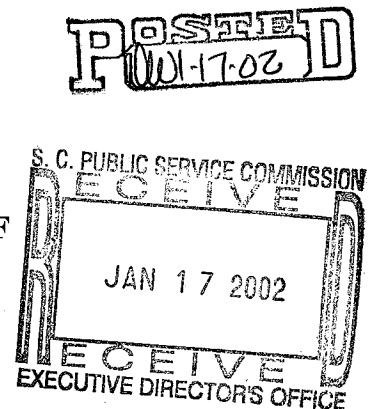


BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA

DOCKET NO. 2000-0210-W/S



IN RE:)

Application of United Utility Companies,)
Inc. for adjustment of rates and)
charges for the provision of water)
and sewer service.)

DIRECT TESTIMONY
OF
STEVEN M. LUBERTOZZI

1 **Q. Please state your name, occupation and business address for the record.**

2 **A.** My name is Steven M. LubertoZZi. I am employed as the Director of Regulatory Accounting
3 at Utilities, Inc., 2335 Sanders Road, Northbrook, Illinois 60062.

4 **Q. What is your professional background?**

5 **A.** I have been employed by Utilities, Inc. since June of 2001. Since that time I have been
6 involved in many phases of rate-making in several regulatory jurisdictions. I graduated from
7 Indiana University in 1990, with a bachelors degree and am a Certified Public Accountant.
8 I had four years of public accounting/financial analysis experience prior to joining Utilities,
9 Inc. I am a member of the American Institute of Certified Public Accountants, the Illinois
10 CPA Society, and an Associate member of the Association of Certified Fraud Examiners.
11 I have successfully completed the Eastern Utility Rate School that NARUC and Florida State
12 University co-sponsor and I have testified before the Illinois Commerce Commission.

13 **Q. Would you please explain your job responsibilities at Utilities, Inc.?**

14 **A.** My responsibilities encompass all aspects of utility commission regulation in fifteen of the
15 states where Utilities, Inc. operates (Georgia does not regulate water and sewer utilities).

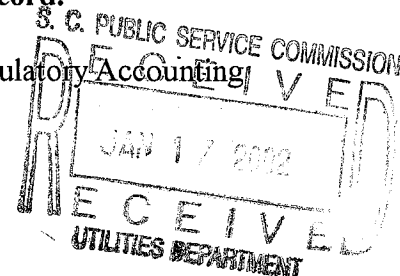


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1 These duties include preparation of rate case applications, coordinating commission audits,
2 developing and delivering testimony before utility commissions and obtaining commission
3 approval of territory expansions.

4 **Q. What is United Utility Companies, Inc.?**

5 **A.** United Utility Companies, Inc. (UUC or the "Company") is a wholly owned subsidiary of
6 Utilities, Inc. ("UI"). UUC was incorporated in 1975 for the purpose of owning and
7 operating water and wastewater utility systems in two upstate South Carolina. As Mr. Daniel
8 discusses in greater detail in his testimony, many of these smaller systems had experienced
9 regulatory difficulty and, combined with the economies of scale which could be realized
10 from their consolidation, it made regulatory and business sense to create UUC. Since that
11 time, and under the Commission's oversight, UUC has grown to serve approximately 90
12 water and 1,400 wastewater customers located in six counties across the state. UUC
13 maintains its operations and customer service office in West Columbia, South Carolina and
14 customer payments, meter readings and service orders are processed from this office.
15 Administrative functions such as regulatory services, management, accounting, human
16 resources, and data processing are performed from the Utilities, Inc., office in Northbrook,
17 Illinois.

18 **Q. What is the purpose of your testimony?**

19 **A.** The purpose of my testimony is to sponsor the Application ("Application") of UUC for an
20 increase in its rates for water and sewer services provided to its service area in South
21 Carolina, which was filed with the Commission on September 24, 2001.

22 **Q. Why is UUC requesting rate relief at this time?**

1 **A.** It has been over eleven years since the Commission last authorized UUC to increase its water
2 and sewer rates, and for the test year ended December 31, 2000, UUC had negative Net
3 Operating Income and a negative return on its rate base. In addition, as time passes, the need
4 for rate relief will increase. The basic cost of living has increased between twenty-five and
5 thirty-five percent in that time period. Environmental compliance costs have likewise
6 increased. Without satisfactory rate relief, UUC's ability to continue to provide safe, reliable
7 and efficient water and sewer utility services to its customers will be placed in jeopardy, and
8 UUC will be unable to meet its financial obligations. In addition, capital will become more
9 costly.

10 **Q.** **Please describe the Company's application.**

11 **A.** In addition to the proposed rate schedule, the Application contains financial statements
12 consisting of a balance sheet, income statements, rate base and rate of return schedule, a test
13 year revenue calculation under current rates, a revenue calculation under proposed rates, and
14 a schedule of current and projected Customers. Also included are the most recent approval
15 letters from DHEC and a sample customer bill form.

16 **Q.** **What are the proposed changes to the Company's Water Rate Schedule?**

17 **A.** Schedule E under Tab B of the Application contains the Company's Schedule of Proposed
18 Water Rates and Charges. The Company has proposed to increase the water customers'
19 Residential Base Facility Charge from the current charge of \$9.00 per month to \$11.50 per
20 month and the Usage Charge from \$3.50 per 1,000 gallons to \$4.50 per 1,000 gallons.

21 **Q.** **What is the impact of the proposed water rate changes?**

1 **A.** The impact of the proposed rate changes on UUC's water customers is, on average, an
2 increase of \$9.47 per month or 28%.

3 **Q.** **What changes to the Company's Sewer Rate Schedule are proposed?**

4 **A.** The Company proposes to increase its monthly charge for sewer to \$53.50 per single family
5 equivalent, or SFE, except for mobile homes. Residences have an SFE of one, while
6 commercial SFE's vary. Mobile home monthly sewer rates are proposed to increase to \$40.
7 For collection-only customers, the sewer rate is proposed to increase to \$27.50.

8 **Q.** **What is the impact of the proposed sewer rate changes?**

9 **A.** The impact of the proposed sewer rate changes is an increase of \$11.00 to \$24.50 depending
10 upon the type of customer, which equates to a 38% to 84% increase.

11 **Q.** **Mr. Lubertozi, did you prepare the Financial Statements provided under Tab B of the**
12 **Application?**

13 **A.** Yes I did.

14 **Q.** **Would you please describe the content of the Financial Statements?**

15 **A.** Yes. The Financial Statements and related schedules submitted with the application consist
16 of a Balance Sheet, Income Statement, Rate Base and Rate of Return, Consumption Analysis
17 under Present rates and Consumption Analysis under Proposed rates. The test year chosen
18 is the year ended December 31, 2000, which was the most recent twelve-month period
19 available at the time of the Company's filing. Schedule A is the Balance Sheet, which shows
20 that at the end of the test year UUC had assets of approximately \$2.9 million. This includes
21 approximately \$2.8 million of Net Utility Plant. Schedule B is the Income Statement for the
22 test year and is comprised of four pages. Page 1 is the Income Statement for Combined

1 Operations; page 2 is the Income Statement for Water Operations; page 3 is the Income
2 Statement for Sewer Operations, and; page 4 is a list of brief explanations for the pro forma
3 adjustments made to the various Income Statements. Schedule C is the Rate Base and Rate
4 of Return Statement and is comprised of three pages. Page 1 is the Rate Base and Rate of
5 Return Statement for Combined Operations; page 2 is the Rate Base and Rate of Return
6 Statement for Water Operations, and; page 3 is the Rate Base and Rate of Return Statement
7 for Sewer Operations. Schedule D is the Consumption Analysis under Present rates, and
8 Schedule E is the calculation of revenues under Proposed Rates. Since they were filed,
9 Schedules B and C have been revised to correct an error in the pro forma plant shown in the
10 original schedule C.

11 **Q. Would you please provide a brief explanation of the proforma adjustments included**
12 **on Schedule B?**

13 **A.** Yes. Operator and Office salaries were annualized as of December 31, 2000. Pension &
14 Other Benefits were annualized to match end of test year salaries and wages. Regulatory
15 Commission Expense was adjusted to reflect the cost of this proceeding amortized over a
16 three-year period. Depreciation Expense was adjusted to reflect the annualized depreciation
17 expense on end of test year plant as well as pro forma additions to plant. Taxes other than
18 income have been adjusted for changes in the payroll taxes based on current tax rates and
19 annualized salary figures as discussed above. In addition, the Regulatory Commission Tax
20 was adjusted to an estimated increase in the assessment by the PSC. Gross Receipts Taxes
21 were annualized on revenues under present and proposed rates. State and Federal Income
22 taxes were calculated at the current rates of 5% and 34%, respectively. AFUDC is

eliminated for ratemaking purposes. Interest Expense was synchronized using the capital structure of the consolidated Utilities, Inc. group of companies, consisting of a debt / equity ratio of 50.02% / 49.98% and an embedded cost of debt of 8.62%.

Q. What is set forth in Schedule C?

A. Schedule C is the Rate Base and Rate of Return Statement. As of December 31, 2000, UUC has a rate base of approximately one million dollars. As indicated on page 1 of Schedule C, UUC had a negative return on rate base during the test year.

Q. Would you describe the Pro Forma adjustments to Schedule C?

A. There are two adjustments to the end of test year rate base. Working capital has previously been used in UUC rate cases and is again used in this proceeding. Working capital is calculated at 1/8 of test year's operating expenses. A pro forma adjustment is made to working capital to match the pro forma operating expenses. The other rate base adjustment indicated on Schedule C is to reflect capital projects that were underway but not yet complete as of the end of the test year. These Pro Forma Plant projects are needed to provide customers with safe and reliable sewer service.

Q. Why has the Company requested that the Commission determine the revenue requirement in this proceeding using the rate of return on rate base methodology?

A. Heretofore, UUC's rates were set by the Commission using a variation of the operating ratio approach. In its Order Number 90-651, issued July 16, 1990 in Docket Number 89-602-W/S, the Commission determined that it would use the operating ratio and/or operating margin as guides in determining just and reasonable rates. The Commission described operating ratio as the percentage obtained by dividing total operating expenses by operating revenues and

1 noted that operating margin is the obverse side of this calculation and is determined by
2 dividing the net operating income for return by the total operating revenues of the utility.

3 **Q. Why do you refer to this approach as a variation of the operating ratio approach?**

4 **A.** First, as the Commission itself noted in Order Number 90-651, its operating margin
5 calculation is the obverse calculation of operating ratio. Secondly, the regulatory, finance,
6 and accounting literature relating to public utilities does not recognize operating margin as
7 a ratemaking approach, but instead discusses operating ratio. Third, as described in the
8 literature, the operating ratio approach is defined as a process in which a utility's revenue
9 requirement is determined by dividing operating expenses by a target operating ratio that the
10 regulatory body deems necessary to permit the utility to generate revenues adequate to cover
11 operating expenses, depreciation, taxes and capital costs.

12 **Q. Would you please identify the literature you are referring to?**

13 **A.** There are a number of works which refer to operating ratio as a ratemaking approach. One
14 such publication is *Accounting for Public Utilities* by Robert L. Hahne and Gregory E. Aliff,
15 which describes operating ratio methodology as being particularly appropriate for application
16 in the transportation industry because most of the equipment employed in that industry is
17 leased. In discussing application of the operating ratio approach to water and wastewater
18 utilities, at page 3-5 of this publication the authors state:

19 Other examples of companies not having the attributes that are
20 conducive to rate base/rate of return measurements are found in the
21 water/wastewater industry. Although water/wastewater companies
22 are capital intensive, many situations exist in which customers
23 provide substantial portions of the capital funds in the form of
24 contributions in aid of construction. These customer-provided funds
25 are normally deducted from the rate base and often result in **nominal**

1 (or even negative) rate base amounts. If the capital that investors
2 supply is **relatively insignificant** or **even nonexistent**, that capital
3 does not provide an adequate foundation for using the rate base/rate
4 of return measure of service costs, and an alternative measure, such
5 as the operating ratio, is applied.
6

7 A copy of the portions of this publication to which I refer are attached in the Appendix to my
8 testimony. Another such publication is the course materials prepared by Dr. Janice A.
9 Beecher, then Director of Regulatory Studies for the Center for Urban Policy and the
10 Environment at Indiana University, for the NARUC Water Committee Eastern Utility Rate
11 School conducted in October of 1997. Dr. Beecher's materials recognize that the operating
12 ratio method is a "[m]odification of [t]raditional [r]egulation" that "is used for smaller
13 systems **with little or no rate base**". A copy of these course materials are also included in
14 the Appendix to my testimony. A third such publication is the Deloitte & Touche *Public*
15 *Utilities Manual, A Service for Public Utilities*, which simply identifies the operating ratio
16 methodology as one of three ratemaking methods traditionally employed, with cost of service
17 and debt service being the other two. Deloitte & Touche notes that the operating ratio
18 methodology is rarely used except in the transportation industry and do not discuss it further
19 in their publication. A copy of the portion of this publication referencing operating ratio is
20 also included in the Appendix to my testimony.

21 **Q. Is the operating margin or operating ratio approach utilized by any of the other state**
22 **regulatory bodies with jurisdiction over other subsidiaries of Utilities, Inc?**

23 **A.** None of the Company's sister subsidiaries are regulated by a state utility commission that
24 employs the operating margin approach used by the Public Service Commission of South
25 Carolina. Only one state utility commission, the North Carolina Utilities Commission,

1 employs the operating ratio methodology to regulate our sister subsidiaries. And, there, the
2 policy is that the operating ratio approach is employed only where it generates **more** revenue
3 than does the rate of return on rate base approach. As I mentioned earlier, the Company's
4 sister subsidiaries operate in fifteen states.

5 **Q. What conclusions do you draw from the literature, Mr. Lubertozi?**

6 **A.** It is clear from the literature that the rate of return methodology is the ratemaking approach
7 traditionally employed in the regulation of public utility rates and that the operating ratio
8 methodology is rarely used. Operating margin is not recognized as an alternative. Moreover,
9 in the case of water and sewer utilities, operating ratio is only appropriate for use when there
10 is little or no investor supplied capital. Stated another way, where a water or sewer utility
11 has no significant rate base, the rate of return approach is not appropriate.

12 **Q. What has been the experience of Utilities, Inc. subsidiary in other states?**

13 **A.** Our experience has been that the only recognized alternative method to rate of return on rate
14 base regulation for water and sewer utilities is operating ratio and that it is employed only
15 in one state, for smaller companies that have little or no rate base, are incapable of having
16 a well-defined capital structure, have a cost of capital which cannot be easily determined and
17 which will benefit on the revenue side when the alternative is employed.

18 **Q. Does the Company fit the profile of a water or wastewater utility for which the**
19 **operating ratio/ operating margin method is appropriate?**

20 **A.** Definitely not. The Company has a rate base in excess of \$1,000,000 of investor provided
21 capital. This is a substantial and is certainly neither nominal nor insignificant. And, the
22 Company's capital structure is well defined as can be gleaned from the testimony of

1 Company witness Ahern. Use of our parent's capital structure is in keeping with generally
2 accepted cost of capital analyses among regulatory bodies and has been approved by this
3 Commission in other cases – particularly those involving the telephone industry. And, also
4 as Ms. Ahern's testimony reflects, our cost of capital is easily determined.

5 **Q. Is rate of return on rate base treatment appropriate for the Company?**

6 **A.** Absolutely. The Company has a substantial rate base and needs to earn a rate of return that
7 is sufficient to obtain the necessary equity and debt capital that a larger utility needs for
8 sound operation.

9 **Q. Does this conclude your testimony at this time?**

10 **A.** Yes, it does.

Appendix
of
Steven M. Lubertozzi

ACCOUNTING FOR PUBLIC UTILITIES

ROBERT L. HAHNE
GREGORY E. ALIFF
DELOITTE & TOUCHE LLP

Contributing Authors: The following were the original contributing authors of *Accounting for Public Utilities*. While much of what these individuals originally wrote has been removed or replaced through the annual update process, we wish to continue to recognize their contributions in the creation of this book.

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1999

Current Through:
RELEASE NO. 16, NOVEMBER 1999

MATTHEW  BENDER

balancing of these two positions is difficult even in stable economic periods. The economic problems of the 1970s, stemming largely from inflation and steep increases in energy costs, resulted in considerable attention being focused on the ratemaking process and have led all interested parties to scrutinize ratemaking methods, their significant components, and their resulting effect on utility prices.

Part II of this book examines the subject of ratemaking. Chapter 3 briefly describes the ratemaking environment and surveys the most important ratemaking styles. Chapter 4 addresses the major factors considered in determining the rate base (the investor-supplied plant facilities and other assets that provide utility services), including the costing method to be used, the time period to be considered, and the components to be included. Chapter 5 focuses specifically on the working capital component of the rate base, with special attention given to cash working capital or those funds needed to cover the lag between required service expenditures and collections received for that service. Chapter 6 deals with depreciation and analyzes the methods used for calculating periodic recovery of capital expenditures. Chapter 7 discusses the selection of the test period used in estimating utility cost of service and the method and timing by which test period data are accumulated.

Chapter 8 describes the phenomenon of attrition, which occurs when revenues consistently fail to keep pace with expenses and a pattern of declining earnings emerges. The causes of, and potential remedies for, this situation are discussed. Chapter 9 covers the principles used in determining what constitutes a fair rate of return as well as the various methods employed in that determination. Chapter 10 addresses the actual pricing of utility services, including rate design with its attendant procedures.

A fundamental aspect of ratemaking considerations is utility taxation, particularly federal income taxes. The complexities of this topic are dealt with in Chapter 17.

§ 3.01 Overview of Ratemaking Approaches

[1] In General

Historically, the rate base/rate of return approach has been the most prominent style of ratemaking in determining revenue requirements. As is developed more fully in § 3.02 below, this approach

measures investment in plant plus related support items, such as inventories and cash working capital requirements. Other approaches to measuring the revenue levels required to cover service costs, however, have been employed by regulators on occasion. Among the various approaches that have been used are the following:

- (1) *Rate base/rate of return approach*—Under the rate base/rate of return approach, revenue requirements equal the total of:
 - (a) operation and maintenance expenses;
 - (b) depreciation;
 - (c) taxes; and
 - (d) cost of capital invested in the rate base (i.e., the amount produced by multiplying the rate base by an appropriate rate of return).

The rate base/rate of return approach is widely used in rate proceedings involving investor-owned electric, telephone, and natural gas transmission and distribution companies. These companies are generally capital intensive, and the annual cost of debt interest and equity earnings requirements is a major component of the total cost of providing service.

- (2) *Debt service coverage approach*—Under this approach, revenue requirements equal the total of:
 - (a) operation and maintenance expenses;
 - (b) taxes; and
 - (c) debt service requirements (i.e., debt principal and interest payments for the test period plus a specified "coverage" allowance in excess of the actual debt service payments required).

This type of ratemaking approach is most often used in highly leveraged systems (i.e., financed primarily, if not entirely, by debt capital) in which common equity capital is not sufficient to function as primary risk capital in providing an adequate buffer against earnings volatility.

- (3) *Operating ratio approach*—Under the operating ratio approach, revenue requirements are determined by dividing operating expenses by a target operating ratio deemed necessary

to produce revenues adequate to cover operating expenses plus depreciation, taxes, and capital costs.

This measure is used primarily in rate proceedings of transportation companies and, in some instances, in establishing water or wastewater company rate levels. It has been used as a substitute for the rate base/rate of return approach in situations in which investor-provided capital and the related capital costs have not been a significant factor in the total cost of providing services.

[2] Considerations Affecting the Ratemaking Approach

The particular ratemaking approach used must fit into a framework of conceptual, practical, and legal considerations.

[a] Conceptual

Conceptually, any of these approaches may be acceptable in the determination of revenue requirements for a regulated utility. The utility incurs costs in providing customer services and is entitled to a reasonable opportunity to recover those costs (presumably incurred at reasonable levels for prudent purposes). Accordingly, the ratemaking process, by whatever means employed, should result in producing rates that, when applied to sales or to services rendered, generate revenues equal to the cost of service incurred. This is fundamental to traditional ratemaking philosophies and procedures, and the structuring of the cost components in a particular format (i.e., the style of ratemaking) should facilitate this objective.

[b] Practical

Practical considerations typically have more effect on the rate-making style or format than conceptual considerations. Most often, the physical, economic, and financial characteristics of the regulated entity dictate the approach used. Capital intensive companies, such as electric, gas, and telephone utilities, require large fixed investments in plant facilities and are generally financed with substantial amounts of debt and equity capital. In these instances, the rate base has a significant role in measuring service costs. Concurrently, the capital markets provide a ready source of data for assessing the costs of debt and equity capital supporting the rate base. These conditions

are ideally suited for application of the rate base/rate or return measure.

Some regulated companies do not have the attributes that are suited for rate base/rate of return applications. Transportation companies, for example, generally are not capital intensive because so many of them lease a large portion of the operating facilities. As a result, operating costs dominate the cost of service, and capital investment (and the related capital cost requirements) are much less significant. In these situations, an alternative measure, such as the operating ratio approach, is more useful in establishing revenue levels required to offset the costs of service.

Other examples of companies not having the attributes that are conducive to rate base/rate of return measurements are found in the water/wastewater industry. Although water/wastewater companies are capital intensive, many situations exist in which customers provide substantial portions of the capital funds in the form of contributions in aid of construction. These customer-provided funds are normally deducted from the rate base and often result in nominal (or even negative) rate base amounts. If the capital that *investors* supply is relatively insignificant or even nonexistent, that capital does not provide an adequate foundation for using the rate base/rate of return measure of service costs, and an alternative measure, such as the operating ratio, is applied.

In addition, a utility may be involved in nonregulated or nonjurisdictional operations or in a variety of classes or types of service. These conditions require practical considerations in choosing the ratemaking approach to cost measurement. An example may be given as follows:

Regulatory and Ratemaking Alternatives



Janice A. Beecher
Indiana University
Fall 1997

Topics

- Alternatives to traditional economic regulation (ratebase/rate-of-return)
- Alternatives to traditional rate design (cost allocation)
- Regulatory reform often involves both
- Rate design choices may affect revenues and earnings

Traditional Regulation

Regulatory review and approval of:

- Revenue requirements
- Ratebase (value)
- Rate of return (ROE and ROR)
- Rate design (cost allocation)

Advantages of the RB/ROR

- A balancing of *competing interests* in the *public interest*
- For capital-intensive industries, regulation protects both ratepayers and shareholders
- Reasonable and institutionally valid
- Well-known and familiar (100+ years)
- Produces relatively stable results

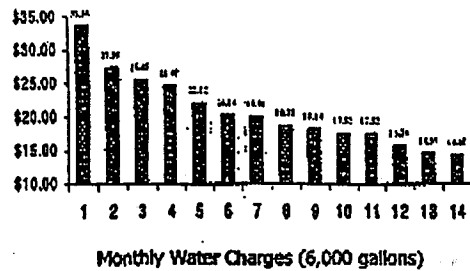
Disadvantages of RB/ROR

- Incentives for overinvestment in capital (ratebase)
- Incentive to cut costs only between rate adjustments (expenses)
- Inadequate incentives for innovation
- Inadequate consideration of social or environmental costs and benefits
- Inflexible, particularly with regard to responsiveness to market changes

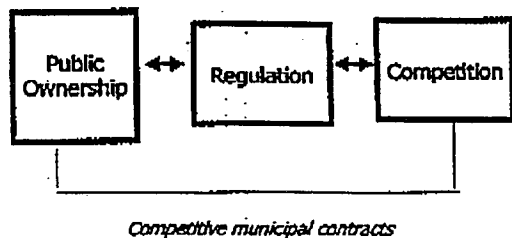
Special Issues for Water

- Rising-cost industry
- Substantial infrastructure needs (20 years = \$138 billion)
- Capital intensity and economies of scale
- Monopolistic character
- Industry structure (size, ownership)
- Public health and safety issues
- Environmental and conservation issues

Economies of Scale and Water Pricing



Regulation, Ownership, and Competition



Modifications of Traditional Regulation

- Pass-throughs and cost-adjustment mechanisms (water, energy, taxes)
- Special-purpose surcharges
- Operating ratio
- Cost indexing
- Preapproval for environmental compliance
- Alternative dispute resolution

Revenue Requirements Formula

$$RR = r(RB-d) + O\&M + D + T$$

Where:

- RR = revenue requirement
- RB - d = ratebase less depreciation
- O&M = operation and maintenance expenses
- D = depreciation expenses
- T = taxes

Operating Ratio

- Substitutes O&M for RB:

$$RR = r(O\&M) + O\&M + T$$

- Used for smaller systems with little or no rate base

Alternative Methods of Regulation

- Rate Indexing
- Incentive regulation (price caps)
- Municipal contracts

Rate Indexing

- Uses changes in consumer prices (CPI) or other metrics to adjust prices
- Simplifies ratemaking and reduces ratemaking costs (smaller systems)
- Can be used in conjunction with incentive regulation (larger systems)

Simple Rate Indexing

- Easy to understand, implement
- Rate increases tied to inflation (CPI)
- Example

	<u>Inflation</u>	<u>Increase</u>	<u>\$/1,000 cal.</u>
Base year	—	—	.830
Inflation	.03	.249	.849

Incentive Regulation

- Initial price-cap process similar to RB/ROR
- Provides utilities with flexibility and reduces regulatory process
- Provides incentives for performance
- May provide a disincentive for needed expenditures (O&M)
- Criticized for allowing excessive earnings

Types of Incentive Regulation

- Price caps (British model)
- Cost indexing
- Incentive rates of return
- Construction-cost incentives (targets)
- Profit-sharing between ratepayers and shareholders
- Combinations (such as price caps and indexing)

British Price-Cap Model

$$PC = \text{Price level} \pm RPI \pm K$$

where K is a composite of :

- X = expected efficiency in the future
- Q = expenditure on quality enhancements
- Po = efficiency gains delivered*
- S = enhanced service levels expenditure*
- V = supply/demand balance expenditure*

* = new element

Municipal Contracts

- French model (also uses indexing)
- Public ownership and competitive contracts generally displace independent economic regulation
- Considerable use in wastewater industry, gaining popularity in water
- Competitively bid but very long term
- Concern about long-term commitment and investment

Alternative Methods of Rate Design

- Marginal-cost pricing
- Single-tariff pricing
- Negotiated rates
- Value-of-service pricing

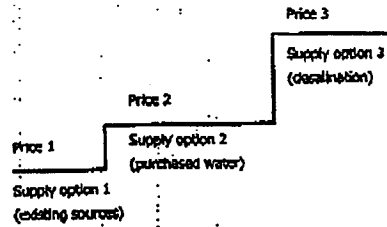
Rate Design Issues

- Science or art?
 - Allocation by customer class, space, time
 - Fixed v. variable charges
- As costs rise, cost allocation becomes more difficult and controversial
- Policy tradeoffs are intensifying
- Role of customer understanding and support
- Increasing experimentation in rate design
- Institutional legitimacy (regulators, courts)

Marginal-Cost Pricing

- Embedded v. marginal or incremental cost
- Promotes efficiency and conservation
- Economic theory v. real world implementation
- Revenue instability when used in determining revenue requirements
- Rate design applications include seasonal and block pricing

Marginal-Cost Pricing Example



Single-Tariff Pricing

- Unique issue for water (utility v. system)
- Spatial differences in cost-of-service
- Costing (economies of scale) v. pricing
- Stand-alone v. district management
- Extends cost averaging and simplifies
- Corporate identity and competitive issues
- Trade-offs among policy objectives
- Role in restructuring (acquisitions)
- Commission policy (majority approve)
- Used In Great Britain (when metered)

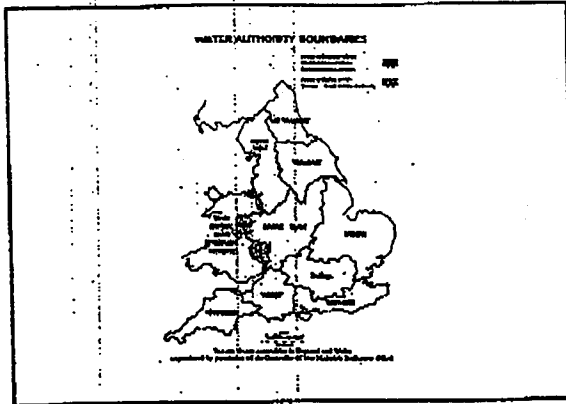
Single-Tariff Pricing Example

System A (smaller)

Stand-alone price	\$3.00/1,000 gallons
District price	\$2.80/1,000 gallons
Single-tariff price	\$2.75/1,000 gallons

System B (larger)

Stand-alone price	\$2.80/1,000 gallons
District price	\$2.70/1,000 gallons
Single-tariff price	\$2.75/1,000 gallons



Negotiated Rates

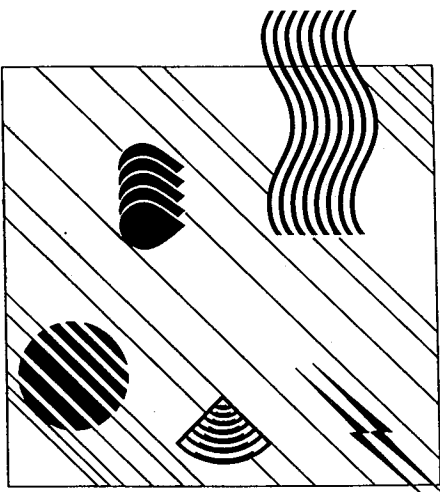
- Avoided cost to the *buyer* can be the ceiling
- Marginal cost to the *seller* can be the floor
- Potential applications
 - Wholesale customers
 - Large-volume users
 - Competitive applications
 - Alternative dispute resolution

Value-of-Service Pricing

- Cost-of-service v. value-of-service
- Willingness-to-pay
- Customer preferences
- Equity or fairness issues
- Not widely practiced
- May become more important in competitive environments

Public Utilities Manual

A Service for Public Utilities



Public Utilities Manual

A Service for Public Utilities

aspects of the ratemaking process: (1) the investment on which utilities are permitted to derive earnings and (2) the compensation or return to be allowed the investors on their investment. The normal rate formula for determining overall return is a simple one and is developed in some detail in Chapter 2.

Some recent court cases have dealt with regulatory jurisdictional issues. One case addressed the issue of whether local regulators are preempted from disallowing costs of a multistate project where the costs were allocated to separate jurisdictions by the FERC; in the particular case, the courts determined that the local regulator was so preempted. In another case, the courts ruled that the FERC could not impose a market price limitation on charges for fuel supplied by an affiliate where the affiliate charges were based on costs, as required by the SEC under the Holding Company Act.

II. Ratemaking Concepts

Ratemaking Methodologies

The basic objective of utility ratemaking is to determine the total amount of revenues a company must generate from its operations in order to achieve its own objectives and yet, at the same time, meet the needs and objectives of its customers.

Three methods of ratemaking have traditionally been used to achieve this objective: the cost-of-service, the debt-service, and the operating-ratio methods. While each permits the recovery of operating expenses and taxes, they differ in the techniques by which they measure the utility's revenue needs beyond these elements (i.e., their required return on and of capital).

The cost-of-service method is by far the most widely used. The debt-service method is most common in the regulation of cooperatives or government entities that are financed primarily with debt securities. The operating-ratio method is rarely used except in the transportation industry, and will not be further discussed here.

Cost-of-Service Method. This method equates "revenue requirements" or "cost of service" with the total of: operating expenses, depreciation, taxes, and a rate-of-return allowance on the utility's investment in rate base.

The total recorded or estimated amounts for operating expenses, depreciation, and taxes for the period under review, or test period, are deducted from revenues generated during the test period to determine net operating income realizable at current rates. This represents the amount available for return.

The utility's investment in facilities and other assets used in supplying utility service (rate base) is also determined. The required rate of return is determined by analyzing the components of the capital structure to produce the composite rate of return required to adequately meet the utility's capital requirements. Rate base multiplied by this composite rate of return results in the required return, or net operating income.

By comparing the required return with the net operating income realizable at current rates, the net-operating-income surplus or deficiency can be determined. This amount, adjusted for income tax and other factors, is then converted to a gross revenue surplus or deficiency in order to determine the